

ABSTRACT OF THE DISCLOSURE

A method of manufacture for optical spectral filters with omnidirectional properties in the visible, near IR, mid IR and/or far IR (infrared) spectral ranges is based on the formation of large arrays of coherently modulated waveguides by electrochemical etching of a semiconductor wafer to form a pore array. Further processing of said porous semiconductor wafer optimizes the filtering properties of such a material. The method of filter manufacturing is large scale compatible and economically favorable. The resulting exemplary non-limiting illustrative filters are stable, do not degrade over time, do not exhibit material delamination problems and offer superior transmittance for use as bandpass, band blocking and narrow-bandpass filters. Such filters are useful for a wide variety of applications including but not limited to spectroscopy, optical communications, astronomy and sensing.